

Listing of Claims

Claims 1-14 (Cancelled).

Claim 15 (New) A chimeric fusion protein comprising a bacteriorhodopsin protein amino acid sequence comprising substantially all of the amino acid sequence of bacteriorhodopsin, wherein at least a portion of the intracellular loop 3 domain of bacteriorhodopsin is replaced by at least a portion of the intracellular loop 3 domain of bovine rhodopsin, the chimeric protein having the ability to promote *in vitro* GTP-GDP exchange on transducin.

Claim 16 (New) The chimeric protein of claim 15, wherein the intracellular loop 3 domain region corresponding to amino acid residues 171-179 of SEQ ID NO:2 is replaced with at least a portion of the intracellular loop 3 domain of bovine rhodopsin.

Claim 17 (New) The chimeric protein of claim 16, wherein amino acid residues 171-179 of SEQ ID NO:2 are replaced with Y223-M253, Y223-R252, or Q225-R252 of bovine rhodopsin.

Claim 18 (New) A polynucleotide sequence encoding the chimeric fusion protein of claim 17.

Claim 19 (New) The polynucleotide sequence of claim 18 operably linked to a promoter.

Claim 20 (New) An archaeobacterium comprising the polynucleotide sequence of claim 19.

Claim 21 (New) A method of producing a bacteriorhodopsin/G protein-coupled receptor chimeric fusion protein comprising culturing the archaeobacterium of claim 20 under suitable conditions and for a period of time sufficient to allow expression of the chimeric fusion protein.

Claim 22 (New) A method of testing a molecule for its ability to interact with the intracellular loop 3 of a G protein-coupled receptor comprising:

(a) contacting the chimeric fusion protein of claim 15 with the test molecule; and

(b) detecting the presence or absence of interaction between the protein and the test molecule of step (a).

Claim 23 (New) The method of claim 22 wherein the detecting step (b) comprises performing an *in vitro* GTP-GDP exchange assay.